PANEL-PC PT955 Series

Intel Atom Processor N270 1.60GHz
Fanless PC
12.1 inch, SVGA, AC input type

PT-955LS

RoHS Compliant

Model	Shape	CPU	Memory	Pre-installed OS (storage device)
PT-955LS-ACx121	Panel mount type	Atom N270 (1.60GHz)	1GB	Windows XP Professional for Embedded Systems (Japanese version, 80GB HDD)

* Specifications, color and design of the products are subject to change without notice.

This product is a fanless PANEL-PC for embedded use based on Intel (R) Atom processor N270 and a 945GSE (GMA950 incorporated) chipset. Adoption of the long life power saving LED and Intel (R) Atom processor offers low power consumption while ensuring sufficient performance.
The “resource-saving PC” contributes power-saving of equipment to reduce your running cost and to promote energy efficiency.

It has extended interfaces such as 1000BASE-T, USB2.0, and serial. Designation by fanless realizes higher reliability.

Embedded-type CPU and chip set have been adopted. The use of readily available parts ensures the ease of the use of the product. In addition, the use of a Contec-customized BIOS allows support to be provided at the BIOS level.

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Features

Contributing to reduction of running cost and promotion energy efficiency
Power consumption is about 10% less compared to the conventional standard model (IPC-PT/L630S(PCI)C). Due to adoption of the low power consumption LED backlight and Intel (R) Atom processor N270, low power consumption, approximately 54VA even at a high load condition, is achieved at the same time sufficient performance is ensured, contributing to the lesser running cost.

Compatible with the PT630/PT620 [12.1 inch type]
This product is compatible with the conventional PT630 / PT620 [12.1 inch type]. It can be established in the same panel cut dimension, open end of a screw location. In addition, display resolution can perform conversion to the same (SVGA) latest model smoothly, too.

Fanless design that reduces maintenance work
This product's fanless design is free from dusts and foreign objects, and the use of the parts that degrades over the years is avoided in most case, resulting in drastic alleviation of the maintenance burden.

High definition supported DVI external display output
This product has the up to 1920 x 1080 pixels DVI external display output as standard feature. A stand-alone two-displays application which, for example, displays the screen on a big LCD TV separately from the main LCD, can be built. Also, with the accompanying analog RGB (15 pin HD-SUB) conversion adapter, connecting to an analog RGB display is supported.

Remote power management function to reduce operation tasks
This product supports timed/automated system start-up (Resume By Alarm). For example, it enables unattended operation, such as starting to show information of an establishment in unison at opening time. Also, it supports system start-up externally via network (Wake On LAN) and modem (Power On by Ring). It encourages significant labor saving in operation.

Major types of peripherals are supported with rich interfaces including the two CF card slots
It has a variety of extended interface such as 1000BASE-T x 2, USB2.0 x 4, serial (RS-232C) x 3.
It has 2 CF card slots that can use for OS and data. They are very useful because you can use HDD for system start-up and CF for maintenance, system log, or taking away the collected data.

Falling-off prevention tools and cable clamps provided to avoid trouble caused by disconnected cable
This product stays trouble-free, being equipped with USB removal prevention fitting and cable clamp for connectors with no locking mechanism, such as USB cable, and with hardware to properly mount and avoid falling out of CF card.

Safety design required for embedded applications
Retention of CMOS data by EEPROM allows the system to start up even when the battery has run out. It is designed for safety required for embeddeding purpose, for example, it adopts the special HDD with higher reliability and longer life.

A wide range of power supplies supported
As the product supports a wide range of power 100 - 240VAC (50 / 60Hz), it can be used in a variety of power environments.

Touch panel enables keyboard-less operation.
These products have analog touch panel enabling mouse emulation using driver software.

Supported OS

Windows XP Professional for Embedded Systems

Functional Specification

Model	PT-955LS-ACx121
Assembly type	Panel mounted
CPU	Intel® Atom™ Processor N270 (1.60GHz / FSB533MHz)
Chip set	Intel® 945GSE + ICH7M-DH
BIOS	BIOS (mfd. by Award)
Memory	1GB (200pin SO-DIMM x 1), PC2-4300 DDR2 SDRAM
Graphic	
Controller	Intel® GMA950 (Built in 945GSE chip set) Multi-monitor function supported *1
Video RAM	Main memory shared
Video BIOS	64KB(C0000H-CFFFFH)
LCD type	
LCD type	12.1-inch TFT color LCD, SVGA(800 x 600), 260,000 colors
Backlight	LED method, The ON/OFF software can control.
Touch panel	
Resolution	4096 x 4096 (emulated in 800 x 600 mode)
Detection method	Resistive-film analog type
Connection	Internal serial port
External display output	
DVI*2	640 x 480, 800 x 600, 1,024 x 768, 1,152 x 864, 1,280 x 600, 1,280 x 720, 1,280 x 768, 1,280 x 960, 1,280 x 1,024, 1,360 x 768, 1,400 x 1,050, 1,600 x 900, 1,600 x 1,200, 1,856 x 1,392, 1,920 x 1,080, 1,920 x 1,200 (16,770,000 colors)
Analog RGB	640 x 480, 800 x 600, 1,024 x 768, 1,280 x 768, 1,280 x 1,024, 1,360 x 768, 1,400 x 1,050 (16,770,000 colors)
Audio	AC97 compliant, LINE OUT x 1, MIC IN x 1
IDE	Primary IDE Master / Slave (Max 2 devices), CF card slot connection
LAN*3	Intel® 82573L Controller 1000BASE-T/100BASE-TX/10BASE-T x 2 (Wake On LAN support)
USB	USB 2.0-compliant 4 port
Serial	RS-232C 4 port (one of the ports is used for touch panel), Baud rate: 50 - 115,200bps
General-purpose I/O	None
Hardware monitoring	Monitoring CPU temperature, board temperature, power voltage
Watch dog timer	Software programmable, 255 level (1sec - 255 sec), Causes a reset upon time-out.
Real-time clock	ICH7M-DH integrated, The real-time clock is accurate within ±3 minutes (at 25°C) per month, Lithium backup battery life : 10 years or more
Power Management	Power management setup via BIOS, Power On by Ring / Wake On LAN, Supports PC98/PC99 ACPI Power management
Interface	
External display	1 port (29 pin DVI-I connector), DVI-analog RGB conversion adapter attachment
Audio	LINE OUT: ϕ3.5 Stereo mini jack, Full-scale output level 1.5Vrms (Typ.), Dual 50mW Amplifier MIC IN: ϕ3.5 Stereo mini jack, Full-scale input level 1.3Vrms (Typ.)
SATA	1 slot (2.5" SATA HDD bay), Serial-ATA 1.0
	One HDD is mounted (80GB, 1 partition) *4
CF card slot	2 slots (CF1/CF2), CF CARD Type I, bootable
LAN*3	2 port (RJ-45 connector)
USB	4 port (A-TYPE connector)
RS-232C	2 port (9pin D-SUB connector [male])
Power supply	
Rated input voltage	100 - 240VAC (50/60Hz)
Permissible input voltage range	85 - 264VAC (47 - 63Hz)
Current consumption	54.1VA (Max.)
External device power supply capacity	- CF card slot: +3.3VDC 1A (500mA per slot) - USB port: +5V 2A (500mA per slot)
Waterproofing and dust-proofing	Front panel IP65 standard
Panel cut dimensions (mm)	344 (W) x 281 (H)
Physical dimensions (mm)	370(W) x 81.4(D) x 307(H) (No protrusions and without mounting bracket)
Weight	5.7kg (without mounting bracket)

*1 : A multi-screen display function using the main LCD and an external display. The "Twin" option is, however, not available for a combination with an external DVI-connected display. "Extended desktop" or "Intel® dual display clone" can be used instead.
*2 : Display of the DVI-connected screen becomes active after the Windows starts up.
*3 : Care about ambient temperature when using 1000BASE-T. Refer to "Installation Requirements" in page 4 for details.
*4 : The capacity of a storage media is a value when 1GB is calculated by 1 billion bytes. The capacity that can be recognized from OS might be displayed fewer than an actual value.

Installation Environment Requirements

Model	PT-955LS-ACx121
Operating temperature *5	0 - 45°C (0 - 40ºC when using 1000BASE-T)
Storage temperature	-10 - 60°C
Operating humidity	10 - 90%RH (No condensation)
Maximum wet bulb temperature	39°C (No condensation)
Floating dust particles	Not to be excessive
Corrosive gas	None
Noise resistance	
Line noise	AC line / ±2kV, Signal line/±1kV (IEC61000-4-4 Level 3, EN61000-4-4 Level 3)
Static electricity resistance	Contact discharge / ±4kV (IEC61000-4-2 Level 2, EN61000-4-2 Level 2), Atmospheric discharge / ±8kV (IEC61000-4-2 Level 3, EN61000-4-2 Level 3)
Vibration resistance	
Sweep resistance	(Nonoperating) 10 - 57Hz / semi-amplitude 0.15 mm 57 - 150Hz / 2.0G, 40 min. each in x, y, and z directions
	(Operating) 10 - 57Hz / 0.5G 25 min. each in x, y, and z directions
	JIS C60028-2-6-compliant, IEC68-2-6-compliant
Impact resistance	10G, half-sine shock for 11 ms and 3 times in x, y, and z directions (JIS C60068-2-27-compliant, IEC68-2-27-compliant)
Grounding	Class D grounding, SG-FG / continuity

*5 : For more details on this, please refer to page4, "Installation Requirements".

Options

Screen protective sheets

IPC-CV12 12.1-inch screen protective sheets (10 sheets)

⚠ CAUTION
Note that the sheets may not protect the screen because it is a few millimeters smaller than the screen size.

Protective sheets		PT-955 Series	
Model	Sheet size (mm)	Model	Screen size (mm)
C-CV12	250.0 × 188.0	PT-955LS-ACxxxx	249.0×188.5

CF Card

CF-1GB-B 1GB CompactFlash for Fix Disk
CF-2GB-B 2GB CompactFlash for Fix Disk
CF-4GB-B 4GB CompactFlash for Fix Disk
CF-8GB-B 8GB CompactFlash for Fix Disk

Additional TFT color LCD

< LVDS&DVI input type >

FPD-H71XT-DC1*1 (15inch 1024 x 768dots,Panel mounted type)
FPD-L71ST-DC1*1 (12.1inch 800 x 600dots,Panel mounted type)
FPD-S71VT-DC1*1 (6.4 inch 640 x 480dots, Panel mounted type)
FPD-H75XT-DC1*1 (15inch 1024 x 768dots, Embedded type)
FPD-L75ST-DC1*1 (12.1inch 800 x 600dots, Embedded type)
FPD-M75VT-DC *1 (10.4inch 640 x 480dots, Embedded type)

*1 Please purchase the optional connection cable [IPC-DVI/D-020, IPC-DVI/D-050].

<Analog RGB types>

FPD-H21XT-AC (15inch 1024 x 768 dots, Panel mounted type)
FPD-L21ST-AC (12.1inch 800 x 600 dots, Panel mounted type)
FPD-M21VT-AC (10.4inch 640 x 480 dots, Panel mounted type)

Display cable only for DVI input

IPC-DVI/D-020 DVI-D Cable (2m)
IPC-DVI/D-050 DVI-D Cable (5m)

⚠ CAUTION

Precautions when using products other than our options

If a product other than our option is used, the normal operation may be impaired or the functions may be limited.

Precautions when Using Additional Display

- An additional display can be used to enable simultaneous screen display with the PANEL-PC main display.
- If the resolution of the additional display is different from that of the PANEL-PC main display, the size of screen images on the additional display will be decreased or increased with lower image quality.
- When using the main unit and touch panel function at the same time, use a USB connection for the touch panel.

* Check the CONTEC's Web site for the latest information on these options.

Packing List

	PT-955LS-AC5121
	Panel mount type
	OS-installed model with HDD
Name	Pcs.
Panel-PC	1
Waterproof packing	1
Cable clamp	1
AC cable clamp	1
AC cable	1
CF card removal prevention fitting	1
DVI-analog RGB conversion adapter	1
Pan screws with a washer (M3x6)	4*1
Washer (M4)	12
Spring Washer (M4)	12
Nut (M4)	12
Product guide (this sheet)	1
IPC Precaution List	1
Serial Number Label	1
Royalty consent contract	1
Setup Procedure Document	1
Recovery Media	1

*1 It is attached to the main body.
*2 The latest user's manual is available from the CONTEC homepage.

Component Life

(1) Battery

The internal calendar clock and CMOS RAM are backed by a Lithium primary battery. The backup time at a temperature of 25°C with the power disconnected is 10 years or more.

(2) HDD

Service life of the drive is approximately 5 years or 15,000 power on hours, whichever comes first. MTBF is 550,000h. They are referential values under the following assumptions:
- Less than 250 power on hours per month.
- Seeking/Writing/Reading operation is less than 20% of power on hours (maximum 3,000 hours).

(3) Touch panel

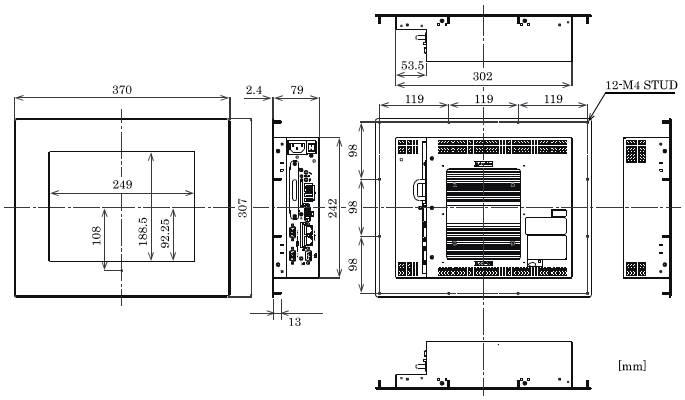
The operating lifetime of the touch panel is at least 1 million touches
(as tested by silicon rubber touching under 2.94N of force at a rate of three presses per second).

(4) LCD backlight

Display brightness decreases over time with use.
The operating lifetime of the backlight is 50,000 hours under 25°C±5°C (the time until the brightness is lowered to 50% of the initial value).

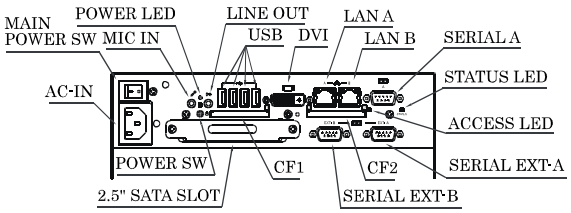
* Replacement of expendables is handled as a repair (there will be a charge).
* Component life is not guaranteed value but only referential value.

Physical Dimensions



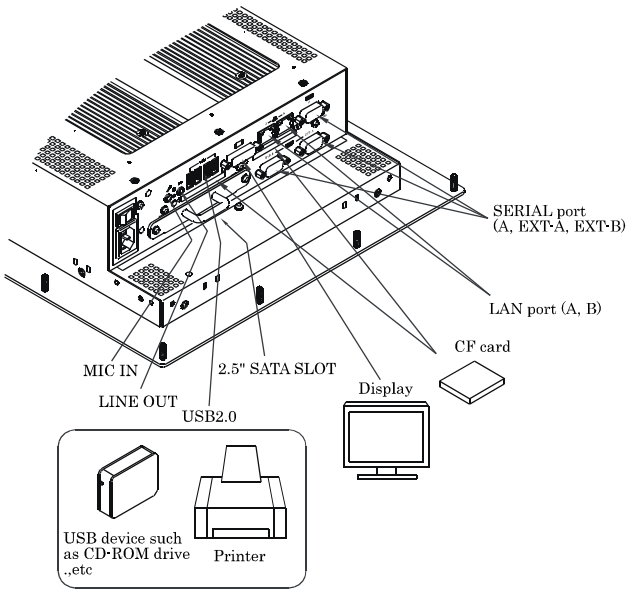
Component Name

Bottom view



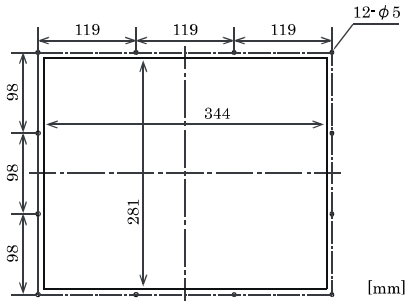
Name	Function
MAIN POWER-SW	AC Power switch
POWER-SW	Power switch
POWER LED	Power ON display LED
ACCESS LED	CF access display LED
STATUS LED	Status LED
AC-IN	AC power input connector
LINE OUT	Line out (ϕ3.5 PHONE JACK)
MIC IN	Mic in (ϕ3.5 PHONE JACK)
LANA	Ethernet 1000BASE-T/100BASE-TX/10BASE-T RJ-45 connector
LANB	Ethernet 1000BASE-T/100BASE-TX/10BASE-T RJ-45 connector
USB	USB port connector x 4
SERIALA	Serial port A connector (9pin D-SUB/male)
SERIAL EXT-A	Serial port Ext-A connector (9pin D-SUB/male)
SERIAL EXT-B	Serial port Ext-B connector (9pin D-SUB/male)
DVI-I	Display (29pin female)
CF1	CF card slot (IDE connection mastering)
CF2	CF card slot (IDE connection slaving)

System Configuration

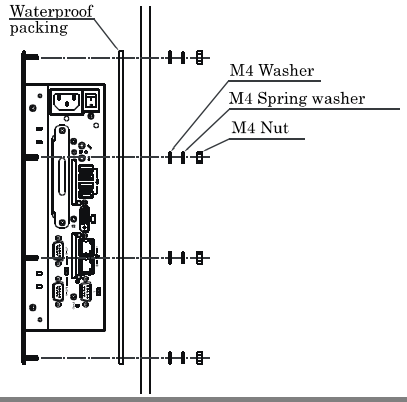


Hardware Setup

(1) Cut out a panel according to the following dimensions to mount the main unit. (The thickness of plate: 1.6 - 6mm)



(2) Place the waterproof packing in the groove on the front face of the main body and insert the main body into the panel from the external side. Hold attached washers and spring washers from the inside of the panel and fix them using attached nuts.

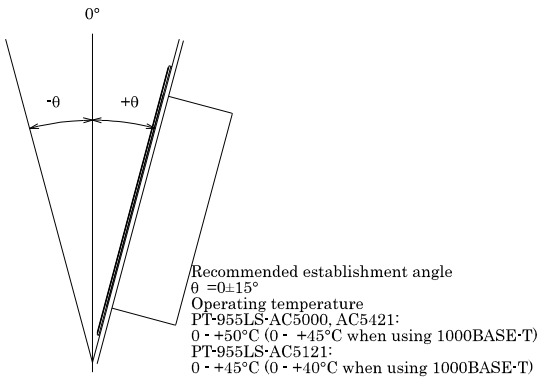


Installation Requirements

Be sure that the ambient temperature is within the range specified in the installation environment requirement by making space between the product and device that generates heat or exhaust air.

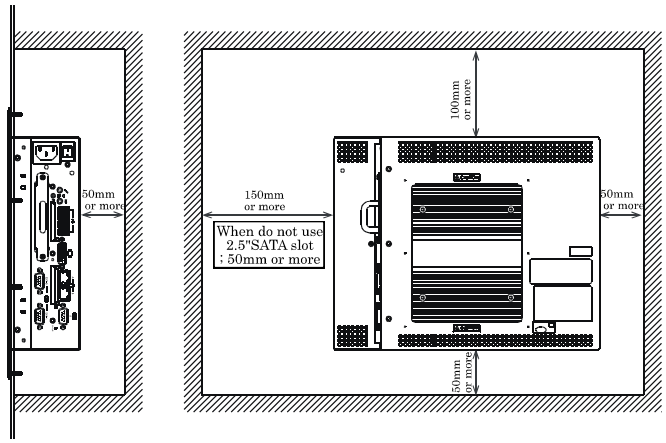
Installed angle which is recommended 15°

Installed angle of this product which is recommended is 0 - 15°. Except for that, the temperature specification of this product might not be filled.



⚠ CAUTION
Note that even though the ambient temperature is within the specified range, an operational malfunction may occur if there is other device generating high heat; the radiation will influence the product to increase its temperature.

Distances between this product and its vicinity



⚠ CAUTION
Do not install this product into the fully-sealed space except the case in which the internal temperature is adjustable by equipment such as air conditioner. Troubles such as operational malfunctions could be occurred by the temperature increase caused by long-term usage.

Ambient temperature

In this product, the ambient temperature is decided from the multiple measurement points as shown below. When making use of the product, the air current should be adjusted to prevent that all the temperatures measured at the measurement points exceed the specified temperature.